

## **REMARKS**

Reconsideration of this application, based on the foregoing amendment and these remarks, is respectfully requested.

Claims 1 through 4, 6 through 10, 12, and 19 through 23 are now in this case. Claims 1, 7, 19, and 20 are amended in this paper. Claims 21 through 23 are added. Claims 5, 11, and 13 through 18 are canceled.

Each of remaining independent claims 1, 7, and 19 are amended to more completely cover all aspects of Applicants' invention. This amendment cancels, in each claim, the last element or step regarding the indicating that an anomaly lacks a known characteristic corresponding to a result in the library, if the wavelet analysis result does not correspond to a reference wavelet analysis result. Each of these claims is also amended to more clearly recite the responsive nature of the indicating relative to the corresponding of the wavelet analysis result to a reference wavelet analysis result. No new matter is presented by this amendment to these claims.

Dependent claims 21 through 23 are added to recite the element canceled from each of the independent claims in this paper. New claims 17 through 21 are dependent on amended claims 1, 7, 19, and 20, respectively. Because these new claims present an element or step previously present in an independent claim, no new matter is presented.

Claim 20 is amended to depend on amended claim 1.

Claims 1 through 5, 7 through 11, 13 through 17, 19, and 20 were rejected under §102(e) as anticipated by the Bechhoefer et al. reference<sup>1</sup>. Claims 6, 12, and 18 were rejected under §103 as unpatentable over the Bechhoefer et al. reference.

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<sup>1</sup> U.S. Patent Publication No. 2004/0230282, published November 18, 2004, on an application filed May 12, 2003 by Bechhoefer et al.

Claims 13 through 18 are canceled to advance the prosecution of this case.

Applicants respectfully submit that amended claim 1 and its dependent claims 2 through 4, 6, 20, and 21 are novel and patentably distinct over the Bechhoefer et al. reference.

Amended claim 1 requires an analysis module that is operable to receive a first signal from a detector that has scanned a magnetic field from a wire comprising an anomaly, the first signal corresponding to a second signal used to generate the magnetic field. In addition, amended claim 1 now also requires that the analysis module is operable to determine a location of the anomaly from the scanned magnetic field; claim 5 is canceled accordingly.

Applicants first respectfully submit that the Bechhoefer et al. reference nowhere discloses receiving a first signal from a detector that has scanned a magnetic field from a wire. To the extent that the Bechhoefer et al. reference teaches the nature of the signal acquired by its system, this teaching is simply a generic teaching presumably involving an electrical signal.<sup>2</sup> While the Examiner asserts that paragraph [0007] of the reference teaches the receiving of a signal from a detector that has scanned a magnetic field,<sup>3</sup> Applicants submit that this paragraph does not mention the scanning of a magnetic field, and in fact does not even include the word “magnetic”. Accordingly, Applicants submit that the teachings of the Bechhoefer et al. reference fall short of the requirements of claim 1.

Furthermore, because the Bechhoefer et al. reference lacks teachings regarding any signal that is based on a scanned magnetic field, and upon which the analysis is performed, the reference necessarily fails to disclose an analysis module that is operable to determine a location of the anomaly in the wire from the scanned magnetic field, as now required by amended claim 1. While the Examiner asserted that the Bechhoefer et al. reference teaches the determining of the location of the anomaly in the wire from the scanned magnetic field,<sup>4</sup> Applicants submit that this cited location of the reference refers to the use of Frequency Domain Reflectivity (FDR) as applied to the sensed (electrical) signal, and therefore has no relation to the wavelet analysis (*i.e.*,

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<sup>2</sup> Bechhoefer et al., *supra*, paragraphs [0073] and [0074].

<sup>3</sup> Office Action of September 9, 2005, page 2.

time-frequency analysis) of the claims, nor does this portion of the reference have any relation to the use of a scanned magnetic field to determine anomaly location. Accordingly, Applicants submit that the teachings of the Bechhoefer et al. reference fall short of the requirements of amended claim 1 also in this respect.

Applicants further respectfully submit that there is no suggestion from the prior art to modify the teachings of the Bechhoefer et al. reference in such a manner as to reach amended claim 1 and its dependent claims. This lack of suggestion is primarily apparent from the absence of any mention in the Bechhoefer et al. reference of a scanned magnetic field of the wire under analysis. In addition, the system of amended claim 1 also now provides a substantially direct measurement of the anomaly location, based on the scanned magnetic field, which provides improved precision in the analysis of the failure.<sup>5</sup> The prior art provides no mention of this benefit, in combination with the wavelet analysis performed by the claimed module.

For these reasons, Applicants respectfully submit that amended claim 1 and its dependent claims are novel and patentably distinct over the Bechhoefer et al. reference, properly interpreted.

Applicants respectfully submit that amended claim 1 and its dependent claims 2 through 4, 6, 20, and 21 are novel and patentably distinct over the Bechhoefer et al. reference.

Independent method claim 7 requires the receiving of a first signal from a detector that has scanned a magnetic field from a wire comprising an anomaly, the first signal corresponding to a second signal used to generate the magnetic field. Claim 7 is also similarly amended as claim 1, and now also requires the determining of a location of the anomaly from the scanned magnetic field, as previously recited in claim 11, which is canceled accordingly.

As discussed above, Applicants first respectfully submit that the Bechhoefer et al. reference nowhere discloses the receiving of a signal from a detector that has scanned a magnetic field from a wire, as required by amended claim 7. The Bechhoefer et al. reference provides no

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<sup>4</sup> Office Action, *supra*, page 4, *citing* Bechhoefer et al., *supra*, at page 4, paragraph [0256].

specific teachings regarding the signal acquired and analyzed by its system, beyond a generic disclosure of a signal that is presumably an electrical signal.<sup>6</sup> Paragraph [0007] of the reference, asserted by the Examiner as teaching the receiving of a signal from a detector that has scanned a magnetic field,<sup>7</sup> fails to mention a magnetic field-based signal, and in fact fails to include the word “magnetic”. Accordingly, Applicants submit that the teachings of the Bechhoefer et al. reference fall short of the requirements of claim 7.

Applicants further submit that the lack of teachings in the Bechhoefer et al. reference regarding a scanned magnetic field causes the reference to necessarily fail to disclose the step of determining a location of the anomaly in the wire from the scanned magnetic field, as now required by amended claim 7. Because, as discussed above, the Bechhoefer et al. reference fails to teach the scanning of a magnetic field whatsoever, the reference necessarily fails to teach the determining of the location of the anomaly in the wire from the scanned magnetic field. While the Examiner asserted that the reference teaches the determining of the location of an anomaly,<sup>8</sup> that location of the reference refers only to the use of Frequency Domain Reflectivity (FDR) as applied to the sensed (electrical) signal, which is a purely frequency domain analysis that is substantially different in practice and result from the wavelet analysis (*i.e.*, time-frequency analysis) of claim 7; this passage also fails to mention or suggest the use of any signal based on a scanned magnetic field to determine location. Accordingly, Applicants submit that the teachings of the Bechhoefer et al. reference fall short of the requirements of amended claim 7 also in this respect.

Applicants further respectfully submit that there is no suggestion from the prior art to modify the teachings of the Bechhoefer et al. reference in such a manner as to reach amended claim 7 and its dependent claims. The absence of any teaching in the Bechhoefer et al. reference regarding a scanned magnetic field is instructive in this regard. Furthermore, because the method of amended claim 1 substantially directly measures of the anomaly location from this

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<sup>5</sup> Specification of S.N. 10/749,885, page 7, lines 5 through 12.

<sup>6</sup> Bechhoefer et al., *supra*, paragraphs [0073] and [0074].

<sup>7</sup> Office Action of September 9, 2005, page 4.

<sup>8</sup> Bechhoefer et al., *supra*, paragraph [0256].

scanned magnetic field, the claimed method provides improved precision in the failure analysis. Because this benefit stems directly from the difference between the claim and the prior art, Applicants submit that its proper consideration further supports the patentability of claim 7 and its dependent claims.

For these reasons, Applicants respectfully submit that amended claim 7 and its dependent claims 8 through 10, 12, and 22 are novel and patentably distinct over the Bechhoefer et al. reference.

Claim 19 is similarly amended as discussed above relative to claims 1 and 7; as such, Applicants submit that claim 19 and its dependent claim 23 are novel and patentably distinct over the Bechhoefer et al. reference. As in its original form, claim 19 requires means for receiving a first signal from a detector that has scanned a magnetic field from a wire comprising an anomaly, the first signal corresponding to a second signal used to generate the magnetic field. Claim 19 now also requires means for determining of a location of the anomaly from the scanned magnetic field.

As discussed above, Applicants respectfully submit that the Bechhoefer et al. reference falls short of the requirements of claim 19 because it fails to teach the function of receiving a signal from a detector that has scanned a magnetic field from a wire, much less means for doing so as required by the claim. Rather, the teachings of the Bechhoefer et al. reference regarding its received and analyzed signal are simply a generic recitation of a signal, presumably an electrical signal, because there is no mention anywhere in the reference, including the location cited by the Examiner,<sup>9</sup> of a signal based on a magnetic field. And because the Bechhoefer et al. reference fails to disclose the function of determining a location of the anomaly in the wire from the scanned magnetic field, it therefore fails to disclose means for doing so as now required by claim 19. Accordingly, Applicants submit that the teachings of the Bechhoefer et al. reference fall short of the requirements of amended claim 19 in at least these two respects.

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<sup>9</sup> Bechhoefer et al., *supra*, paragraph [0007].

Nor is there any suggestion from the prior art to modify the teachings of the Bechhoefer et al. reference so as to reach the system of amended claim 19 and new claim 23. Because disclosure of a scanned magnetic field is lacking in the Bechhoefer et al. reference, that reference itself provides no motivation or guidance to provide means for receiving a signal generated from a scanned magnetic field. In addition, the benefit of the system of claim 19 in providing precise identification of the location of an anomaly from this scanned magnetic field further supports the patentability of claim 7 and its dependent claims.

For these reasons, Applicants respectfully submit that amended claim 19 and its dependent claim 23 are novel and patentably distinct over the Bechhoefer et al. reference.

For the above reasons, Applicants respectfully submit that all claims now in this case are in condition for allowance. Entry of this amendment in, and favorable consideration of, this application in its continued examination are respectfully requested.

Respectfully submitted,

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